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Amendments to the Claims:

This listing of claims will replace all prior versions and listings of the claims in the application:

Listing of Claims:

Claims 1-16 (canceled)

Claim 17 (new): A diagnostic golf club system comprising:

 a diagnostic golf club comprising a club head, a shaft attached to the club head, a plurality of strain gauges attached to the shaft, the strain gauges capable of measuring data related to the golf club during a golf swing, and an internal memory device including a non-volatile flash buffer memory capable of receiving and storing data from the strain gauges;

 a computer located separate and spaced apart from the diagnostic golf club for processing the data stored in the internal memory device; and

 an interface mechanism removably coupled to the diagnostic golf club for providing communication between the diagnostic golf club and the computer, the interface mechanism including a connection plug having a plurality of pins for connection to a plurality of receptors on the diagnostic golf club,

 wherein the internal memory device is capable of storing data for multiple swings of the diagnostic golf club until the data is uploaded to the computer via the interface mechanism.

Claim 18 (new): The system according to claim 17 wherein the diagnostic golf club further includes a circuit board positioned within a hollow interior of the shaft, the circuit board including the internal memory device, a power control circuit, a signal conditioning circuit for the plurality of strain gauges, and a serial communication circuit.

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Claim 19 (new): The system according to claim 17 wherein the diagnostic golf club is selected from the group consisting of a driver, a fairway wood, an iron and a putter.

Claim 20 (new): The system according to claim 17 wherein the interface mechanism further includes a serial interface device.

Claim 21 (new): A system for determining the shaft flex profile of a golfer, the system comprising:

a golf club including a club head and a shaft attached to the club head, the golf club further including a first plurality of strain gauges for providing data related to the golf club during a golf swing mounted on a tip end of the shaft, a second plurality of strain gauges for providing data related to the golf club during a golf swing mounted on a butt end of the shaft, a circuit board positioned within the shaft, the circuit board including a power control circuit, a signal conditioning circuit, a serial communication circuit, and a memory circuit including a non-volatile flash buffer memory for storing the strain measurements, and a plurality of wires connecting the first and second pluralities of strain gauges to the circuit board;

a processor located separate and spaced apart from the golf club for processing the data from the first and second pluralities of strain gauges to provide a shaft flex profile for the golfer; and

an interface mechanism for transferring the data from the memory circuit to the processor,

wherein the non-volatile flash buffer memory is capable of storing data for multiple swings of the golf club until the data is uploaded to the processor via the interface mechanism.

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Claim 22 (new): The system according to claim 21 wherein the first plurality of strain gauges includes nine strain gauges, and the second plurality of strain gauges includes nine strain gauges.

Claim 23 (new): The system according to claim 21 wherein the golf club is selected from the group consisting of a driver, a fairway wood, an iron and a putter.

Claim 24 (new): The system according to claim 21 wherein the golf club further includes a battery positioned within the shaft.